IN THE CLAIMS:

1. (Currently Amended) A method for [[preparing]] pretreating a positive electrode material for use in a cell of a lithium, lithium-ion or lithium-ion polymer battery, the method comprising:

subjecting a lithiated transition metal oxide positive electrode material having one or more [[water-containing]] hydrolysis product compounds therein to a treatment prior to preparing said cell to convert at least a portion of the [[water-containing]] hydrolysis product compounds on a surface of the oxide to one or more water-free compounds, wherein the treatment includes the following:

(a) exposing the positive electrode material at a temperature of 0-650°C to a CO_2-containing gas having a partial pressure of CO_2 in the range of 0.0001-100 atm; and

(b) heating the positive electrode material to a temperature of at least 250°C in the presence of an oxygen-containing gas having a partial pressure of O_2 in the range of 0.01-99 atm.

2. (Currently Amended) The method of claim 1 wherein the one or more water-containing compounds are selected from the group consisting of LiOH, $LiHCO_3$,

$2NiCO_3 \cdot 3Ni(OH)_2$ and $Ni(OH)_2$ on the positive electrode material and the one or more water-free compounds are selected from the group consisting of Li_2CO_3, $NiCO_3$, NiO, Ni_2O_3 and $LiNiO_2$.

3. (Currently Amended) The method of claim 1 wherein the one or more [[water-containing]] hydrolysis product compounds are selected from the group consisting of a lithium hydroxide, a lithium bicarbonate, a transition metal hydroxide and a basic transition metal carbonate.

4. (Previously Presented) The method of claim 1 wherein the CO_2-containing gas of treatment (a) has a partial pressure of CO_2 in the range of 0.0002-0.2 atm.

5. (Previously Presented) The method of claim 1 wherein the CO_2-containing gas of treatment (a) is air.

6. (Previously Presented) The method of claim 1 wherein the oxygen-containing gas of treatment (b) has a partial pressure of O_2 in the range of 0.1-1.0 atm.

7. (Previously Presented) The method of claim 6 wherein the oxygen-containing gas of treatment (b) is air.

8. (Previously Presented) The method of claim 1 wherein the oxygen-containing gas of treatment (b) is air.

9. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected to treatment (a) at a temperature of 100-400°C.

10. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected to treatment (b) at a temperature of 250-650°C.

11. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected first to treatment (a), then to treatment (b).

12. (Previously Presented) The method of claim 1 wherein the positive electrode

material is subjected simultaneously to treatments (a) and (b) at a temperature in the range of 250-650°C.

13. (Previously Presented) The method of claim 12 wherein the temperature is in the range of 300-500°C.

14. (Previously Presented) The method of claim 12 wherein the CO_2-containing gas has a partial pressure of CO_2 in the range of 0.0002-0.2 atm, and the oxygen-containing gas is air with a partial pressure of O_2 in the range of 0.1-1.0 atm.

15. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected to treatment (b) immediately prior to preparing said cell.

16. (Withdrawn) A method for preparing a positive electrode material for use in a cell of a lithium, lithium-ion or lithium-ion polymer battery, the method comprising:

preparing a lithium-based positive electrode material with an excess of lithium, wherein the excess lithium forms at least one water-containing compound selected from the group consisting of LiOH and $LiHCO_3$;

exposing the positive electrode material at a temperature of 0-650°C to a CO_2-containing gas having a partial pressure of CO_2 in the range of 0.0001-100 atm for a time sufficient to react at least a portion of LiOH with CO_2 to produce Li_2CO_3; and

immediately prior to preparing said cell, heating the positive electrode material to a temperature of at least 250°C in the presence of an oxygen-containing gas having a partial pressure of O_2 in the range of 0.01-99 atm for a time sufficient to thermally decompose at least a portion of $LiHCO_3$ to produce Li_2CO_3.

17. (Withdrawn) The method of claim 16 wherein the CO_2-containing gas has a partial pressure of CO_2 in the range of 0.0002-0.2 atm.

18. (Withdrawn) The method of claim 16 wherein the oxygen-containing gas has a partial pressure of O_2 in the range of 0.1-1.0 atm.

19. (Withdrawn) The method of claim 18 wherein the oxygen-containing gas is air.

20. (Withdrawn) The method of claim 16 wherein the temperature for exposing the positive electrode material to the CO_2-containing gas is in the range of 100-400°C.

21. (Withdrawn) The method of claim 16 wherein the temperature for heating the positive electrode material in the presence of the oxygen-containing gas is in the range of 250-650°C.

22. (Withdrawn) The method of claim 16 wherein the positive electrode material is heated and exposed to the CO_2-containing gas and the oxygen-containing gas simultaneously at a temperature in the range of 250-650°C.

23. (Withdrawn) The method of claim 22 wherein the temperature is in the range of 300-500°C.

24. (Withdrawn) A method for preparing a positive electrode material for use in a cell of a lithium, lithium-ion or lithium-ion polymer battery, the method comprising:

preparing a positive electrode material of the formula $LiNi_XCo_YM_ZO_2 \cdot (LiOH)_k(Li_2CO_3)_m(LiHCO_3)_n$ wherein M is one or more transition metals different than Ni and Co, $X+Y+Z=1$, $X \geq Y$, $Z<0.5$, $0.01<k+m+n<0.3$ and k, m and n each have a first value; and

thereafter, and prior to preparing said cell, subjecting the positive electrode material to the following treatments:

(a) exposing the positive electrode material at a temperature of 0-600°C to a CO_2-containing gas having a partial pressure of CO_2 in the range of 0.0001-100 atm; and

(b) heating the positive electrode material to a temperature of at least 250°C in the presence of an oxygen-containing gas having a partial pressure of O_2 in the range of 0.01-99 atm,

wherein, after subjecting the positive electrode material to the treatments, at least one of k and n has a second value less than the respective first value, and m has a second value greater than the respective first value.

25. (Withdrawn) The method of claim 24 wherein treatment (b) is performed at a temperature of 250-650°C.

26. (Withdrawn) The method of claim 24 wherein the positive electrode material is subjected first to treatment (a), then to treatment (b).

27. (Withdrawn) The method of claim 24 wherein the positive electrode material is subjected simultaneously to treatments (a) and (b) at a temperature in the range of 250-

650°C.

28. (Withdrawn) The method of claim 27 wherein the temperature is in the range of 300-500°C.

29. (Withdrawn) The method of claim 24 wherein treatment (a) is performed at the partial pressure of CO_2 in the range of 0.0002-0.2 atm.

30. (Withdrawn) The method of claim 24 wherein treatment (b) is performed at the partial pressure of O_2 in the range of 0.1-1.0 atm.

31. (Withdrawn) A method for preparing a positive electrode material for use in a cell of a lithium, lithium-ion or lithium-ion polymer battery, the method comprising:

preparing a positive electrode material of the formula $LiNi_XCo_YM_ZO_2 \cdot (LiOH)_k(Li_2CO_3)_m(LiHCO_3)_n$ wherein M is one or more transition metals different than Ni and Co, $X+Y+Z=1$, $X \geq Y$, $Z<0.5$, $0.01<k+m+n<0.3$ and k, m and n each have a first value;

exposing the positive electrode material at a temperature of 250-650°C to a CO_2-containing gas having a partial pressure in the range of 0.0002-0.2 atm; and

immediately prior to preparing said cell, heating the positive electrode material to a temperature of at least 250-650°C in the presence of an oxygen-containing gas having a partial pressure of O_2 in the range of 0.1-1.0 atm,

wherein, after exposing and heating the positive electrode material, k and n each have a second value less than the respective first value, and m has a second value greater than the respective first value.